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ABSTRACT

The stability of the Adaptive Behavior Inventory for children (ABIC) over a 4-year period was investigated. The sample was composed of 44 children, distributed approximately equally within racial and ethnic groups (Anglo-American, Black, Mexican-American), socioeconomic group (middle and lower), and gender. Three types of stability were considered: stability of individual scores, stability of group means, and test-retest correlations. Individual scores demonstrated considerable changes. No set of scores for any ABIC scale fell within one standard error of measurement in 68 percent of the cases. Mean scores also showed considerable differences and typically were lower on the second administration. Pearson Product Moment and rank order correlations were generally significant (in the mid-50s to low 60s). (Author/MP)

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# Stability of the Adaptive Behavior Inventory for Children

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SUMMARY: The stability of the Adaptive Behavior Inventory for Children over a four year period is investigated. Forty-four children, approximately equally distributed within racial-ethnic groups (Anglo, black, Mexican American), SES (middle and lower) and gender, comprise the sample. Three types of stability were considered: stability of individual scores, stability of group means, and test-retest correlations. Individual scores demonstrated considerable changes. No set of scores for any ABIC scale fell within one standard error of measurement in 68 percent of the cases. Mean scores also showed considerable differences and typically were lower on the second administration. Pearson Product Moment and rank order correlations generally are significant and in the mid-fifties to low sixties. The earner-consumer scores are least stable.

Stability of
The Adaptive Behavior Inventory for Children

School and child psychologists have an abiding interest in studying children's social development. Interest and work in this area ballooned in the last five years as greater encouragement was given to understanding children's adaptive behaviors. Psychologists often turned to assessment instruments in an effort to obtain a reliable and valid measure of these characteristics.

Many psychologists have expressed an interest in the Adaptive Behavior Inventory for Children (ABIC; Mercer & Lewis, 1977) as a scale which may be useful in assessing one component of social development: adaptive behavior. Many psychologists working principally with lower class and minority group children have viewed the ABIC as particularly attractive.

The widespread use and acceptance of the ABIC occurred even though there are relatively few empirical studies examining the suitability of the scale's standardization, reliability, and validity (Oakland, 1978). Studies reporting test-retest reliability and predictive validity have been noticeably absent.

The research reported in this paper examines the stability of the ABIC over a four-year period.

## Methodology

The 44 children on whom ABIC data are reported were a part of a larger study involving approximately 450 children (ages 6 through 12) on whom various psychological, social, medical, and educational data were acquired (Oakland 1979, 1980). These 44 children were entering grades one through three when they originally were tested ($T_1$) and were in grades four through six when retested ($T_2$). The ABIC data were acquired through parent interveiws in the children's homes by psychologists or social workers.

The ABIC norms include children between the ages of 5 through 11. Although the original sample ($T_1$) included approximately 450 children, only about 150 children were eligible to be included in this follow-up study ($T_2$) because they were less than 12 years old. By utilizing information from our records, the schools, the telephone company and other sources (e.g., neighbors) approximately 80 families were located. These families first were contacted by phone in order to describe the study to them and to make an appointment for a home visit with them. Families having no phone were contacted directly by home visits. Every effort was made to locate all families residing in this central Texas area. All contacts with the families during this follow-up study were by a psychologist from their racial-ethnic group,

Forty-four families agreed to participate. Approximately one-third were from each of three major racial-ethnic groups (Anglo, black, Mexican American), and approximately one-half are from the two social classes (SES) and sexes (Table 1). Thus, this $T_2$ sample reflects the balances sought for and found in the $T_1$ sample.

ABIC protocols were scored using standard scoring instructions (Mercer and Lewis, 1977). No protocol exceeded suggested limits for the ABIC's veracity, don't know, or no opportunity scales. This suggests that all informants knew enough about the subjects to complete the ABIC and were truthful in their responses. Raw score means for these three scales are shown in Table 1.

ABIC average and subscale raw scores were converted to ABIC standard scores before test stability was examined. Three types of stability were considered: stability of individual scores, stability of group means,and test-retest correlations.

Stability of individual scores was examined by using the standard error of measurement for the ABIC and its subscales. Psychometric theory suggests that any observed score is a combination of an individual's true score and an error score. In a group of observed scores, the percentage of cases in which true scores can be expected to fall within a specified number of standard errors of measurement of their corresponding observed score can be calculated using the normal distribution (Anastasi, 1982). Sixty-eight per cent of observed scores can be expected to fall within one standard error of measurement of their corresponding true score. Therefore, if the true scaled scores for the two administrations of the ABIC are the same, 68 percent of all second administration scores can be expected to fall within one standard error of measurement of first administration scores.

## Results and Discussion

The number and percentage of cases for which scores on the two ABIC administrations did in fact differ by one standard error of measurement or less (as given in the ABIC's technical manual, Mercer, 1980) is shown in Table 2. Percentages are given for the ABIC average and each ABIC subscale for the full sample, for Anglo, black and Mexican American children, for males and females, and for children from low and middle SES families.

There is considerable variance in individual scores. No set of scores for any scale for any group fell within one standard error of measurement in 68 percent of the cases. For the full group and all subgroups considered, the peer relations subscale was the most stable while the community roles subscale was the least stable for the total group and at least tied for least stable for all subgroups except Mexican Americans. The percentage of ABIC average and subscale scores falling within one standard error of measurement on the two administrations differed considerably among the racial-ethnic groups. Differences were less pronounced between males and females and between low and middle SES children.

The stability of group mean scores was examined by conducting two-tailed tests for matched samples between 1976 and 1980 scores for the total group and the subgroups listed above. Mean scores and significant differences (probability of obtained $\underline{t}$ value is $\leq$ to .05 given the degrees of freedom associated with the group size) are shown in Table 1. Significant differences (all but one of which represent significantly lower second administration scores) were found for at least

one subgroup for all ABIC scales except the Family Roles subscale. The greatest number of significant differences was found for the non-academic school roles subscale, where significant decreases were observed for males, females, Mexican Americans, middle SES children and for the total sample. The total sample's scores on the peer relations subscale and on the self-maintenance subscale also declined significantly.

The three racial-ethnic groups showed different patterns of mean score change. Anglos' mean scores did not differ significantly on any ABIC scale between the two administrations. A significantly higher score on the community roles subscale was observed for blacks, while scores of Mexican American children were significantly lower on three subscales and on the ABIC average. Similarly males' means were significantly lower on one subscale while females' mean scores were significantly lower on three subscales. Finally, mean scores of children from low SES families did not differ between the two administrations while children from middle SES families' mean scores were significantly lower on the peer relations, non-academic school roles and self-maintenance subscales.

Pearson Product Moment Correlations between the 1976 and 1980 data (Table 3) provide an estimate of consistency. For the total group, the ABIC correlations generally are in the midfifties and all but one (the earner-consumer scale) are statistically significant.

Among the three racial-ethnic groups the correlations for ABIC average and school roles scores are significant while the earner-consumer scores are not significant. Differences exist as to the magnitude of the correlations and their

levels of statistical significance for the other subtests. These test-retest correlations appear to be slightly higher for Mexican American and black children. All seven correlations are significant for the females while four of the seven are significant for males. Some differences among the two SES groups also are apparent. Six of the seven correlations are significant for the middle class children while four of the seven are significant for the lower class children.

Thus, the ABIC average score displays moderate test-retest reliability over a four year period. The correlations of .57 for the total group is somewhat representative of the correlations found for the various subgroups. However, magnitude of the correlations for the various subtests varies considerably. The median correlations often are in the 50s. The earner-consumer scores are the least stable and reliable.

The rank order correlations (Table 4 ) of the ABIC's reliability over a four year period provide a similar evaluation. The average score of .60 is significant. Five of the six subtests also are significant; their median correlation is .51. The earner-consumer scores are not significant and should be considered unstable.

It is important, of course, to consider the limitations of the sample. In addition to its relatively small size, the sample includes only children who lived in the Austin, Texas area between 1976 and 1980, and whose family residence could be traced in some way through school district, postal and/or telephone listings.

Even given this consistency of residence, however, childrens' scores on the ABIC showed a good deal of variability. Individual scores changed more than measurement error alone would predict, and significant changes in group means also were observed. It would appear that adaptive behavior skills are more fluid then stable among our sample. Further research will be needed to determine whether the changes observed represent actual changes in children's skills over time, instability of the ABIC itself, or differences between the expected role performances of children in Texas and in the California norming sample.

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Table 1
Scale Score Means for 1976 and 1980 Administrations of the Adaptive Behavior Inventory for Children

| | ABIC Average | | Family Roles Subscale | | Community Roles Subscale | | Peer Relations Subscale | | Non-Academic School Roles Subscale | | Earner/Consumer Roles Subscale | | Self-Maintenance Subscale | | Veracity Subscale | | No Opportunity/ Not Allowed Responses | | Don't Know Responses | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1976 | 1980 | 1976 | 1980 | 1976 | 1980 | 1976 | 1980 | 1976 | 1980 | 1976 | 1980 | 1976 | 1980 | 1976 | 1980 | 1976 | 1980 | 1976 | 1980 |
| Total Group N=43 | 45.2 | 41.6 | 42.9 | 42.3 | 40.9 | 38.4 | 50.0 | 46.0 (1) | 50.7 | 41.1 (2) | 42.5 | 39.5 | 46.8 | 41.9 (1) | 0.58 | 1.09 | 4.77 | 4.19 | 1.58 | 1.58 |
| Anglos N=15 | 49.4 | 45.6 | 46.5 | 46.2 | 44.9 | 40.7 | 55.6 | 50.9 | 52.0 | 45.3 | 44.6 | 44.5 | 50.7 | 45.4 | 0.67 | 0.87 | 6.53 | 7.67 | 2.27 | 1.40 |
| Blacks N=12 | 42.9 | 44.9 | 44.6 | 45.2 | 41.5 | 47.6 (1) | 48.8 | 46.2 | 46.4 | 44.8 | 44.5 | 40.6 | 45.2 | 46.2 | 0.75 | 1.92 | 5.42 | 1.83 | 1.42 | 1.83 |
| Mexican-Americans N=16 | 43.0 | 35.3 (2) | 38.3 | 36.5 | 36.7 | 29.4 (1) | 45.6 | 41.2 | 52.6 | 34.4 (2) | 38.9 | 34.1 | 44.3 | 35.4 (2) | 0.38 | 0.69 | 2.62 | 2.69 | 1.06 | 1.56 |
| Males N=22 | 44.1 | 40.1 | 42.4 | 40.7 | 40.2 | 38.4 | 49.4 | 44.9 | 46.9 | 37.1 (1) | 39.0 | 39.6 | 42.5 | 39.4 | 0.27 | 1.18 | 4.45 | 3.86 | 2.45 | 2.09 |
| Females N=21 | 46.4 | 43.1 | 43.4 | 44.0 | 41.6 | 38.5 | 50.5 | 47.3 | 54.6 | 45.3 (2) | 46.1 | 39.4 | 51.3 | 44.6 (1) | 0.90 | 1.00 | 5.10 | 4.52 | 0.67 | 1.05 |
| Low SES Family N=19 | 45.1 | 42.8 | 41.8 | 44.4 | 40.8 | 39.6 | 48.0 | 46.2 | 48.8 | 43.4 | 40.4 | 40.8 | 47.6 | 42.3 | 0.63 | 1.05 | 4.47 | 4.58 | 1.58 | 1.58 |
| Middle SES Family N=24 | 45.3 | 40.5 | 43.8 | 40.7 | 41.2 | 37.5 | 51.5 | 45.8 (1) | 52.1 | 39.3 (2) | 44.1 | 38.5 | 46.1 | 41.5 (1) | 0.54 | 1.12 | 5.00 | 3.88 | 1.58 | 1.58 |

1. $p < .05$
2. $p < .01$

Table 2

Stability of Individual Scores on the Adaptive Behavior Inventory for Children Acquired Over a Four Year Period

| | ABIC Average | Family Roles Subscale | Community Roles Subscale | Peer Relations Subscale | Non-Academic School Roles Subscale | Earner/Consumer Roles Subscale | Self-Maintenance Subscale |
|---|---|---|---|---|---|---|---|
| Total Group | 8 (19%) | 11 (26%) | 7 (16%) | 23 (53%) | 9 (21%) | 13 (30%) | 16 (37%) |
| Anglos | 2 (13%)[2] | 2 (13%)[2] | 2 (13%)[2] | 7 (47%)[2] | 4 (27%) | 3 (20%) | 2 (13%) |
| Blacks | 1 (8%) | 4 (33%) | 2 (17%) | 8 (67%) | 3 (25%) | 5 (42%) | 5 (42%)[2] |
| Mexican-Americans | 5 (31%) | 5 (31%) | 4 (25%) | 8 (50%)[2] | 2 (12%) | 5 (31%) | 8 (50%)[2] |
| Gender | | | | | | | |
| Males | 3 (14%) | 6 (27%) | 2 (9%) | 13 (59%) | 5 (23%) | 6 (27%) | 9 (41%) |
| Females | 5 (24%) | 5 (24%) | 5 (24%) | 10 (48%) | 4 (19%) | 7 (33%) | 7 (33%) |
| SES | | | | | | | |
| Low SES Family | 3 (16%) | 3 (16%) | 3 (16%) | 10 (53%) | 5 (26%) | 8 (42%) | 6 (32%) |
| Middle SES Family | 6 (25%) | 8 (33%) | 4 (17%) | 13 (54%) | 4 (17%) | 5 (21%) | 10 (42%) |

1. The numbers (and the percents) reflect the numbers (and the percents) of children whose second ABIC scores was within the range of their first ABIC score plus or minus the $SE_m$. Thus, the follow-up scores of eight of 43 children (or approximately 19 percent) could be considered reliable while the follow-up scores of 35 (or 81 percent) changed more than the $SE_m$ and can be considered to be unreliable

2. The $SE_m$ for these groups differed from the $SE_m$ for the total group (Mercer, 1977). Thus, the $SE_m$ used with these groups was based on their data and not that of the total group.

Table 3
Pearson Product Moment Correlation
for ABIC Scores Acquired in 1976 and 1980

| | ABIC Average | Family Roles Subscale | Community Roles Subscale | Peer Roles Subscale | Non-Academic School Roles Subscale | Earner/Consumer Roles Subscale | Self-Maintenance Subscale |
|---|---|---|---|---|---|---|---|
| Total Group | .57** | .53** | .54** | .63** | .43** | .18 | .55** |
| Anglos | .55* | .47* | .39 | .35 | .54* | .04 | .55* |
| Blacks | .51* | .48 | .81** | .80** | .50* | .20 | .47 |
| Mexican-Americans | .67** | .51* | .58** | .64** | .50* | .21 | .65** |
| Males | .44* | .40* | .47** | .61** | .26 | -.22 | .25 |
| Females | .66** | .63** | .58** | .65** | .51** | .61** | .74** |
| Middle SES Family | .62** | .73** | .57** | .63** | .59** | .29 | .40* |
| Low SES Family | .50* | .30 | .49* | .71** | .22 | .08 | .67** |

* $p \leq .05$
** $p \leq .01$

Table 4
Rank Order Correlations
for ABIC Data Over a Four Year Period

| Scale | Correlation |
|---|---|
| Average | .60** |
| Family Roles | .42* |
| Community Roles | .51** |
| Peer Roles | .59** |
| Non-Academic School Roles | .41* |
| Earner/Consumer | .22 |
| Self-Maintenance | .52** |

* $p \leq .05$
** $p \leq .01$